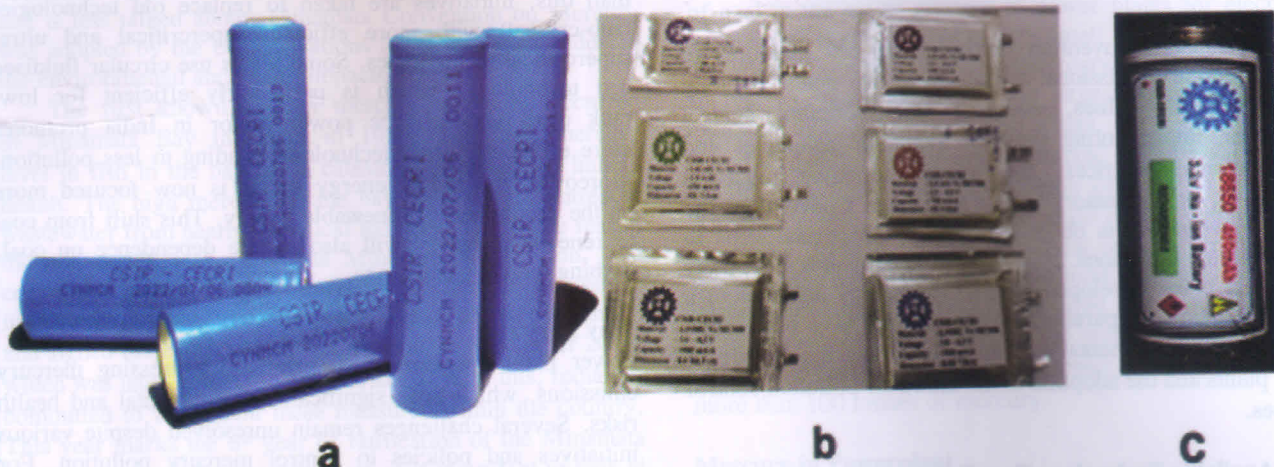


Empowering India's Electric Future through Lithium-ion Battery Technology



Lithium-ion batteries in (a) Cylindrical, (b) Pouch cell formats, and (c) Sodium ion Battery

As the world shifts towards sustainable energy solutions, India is making significant strides in lithium-ion battery technology. The ICeNGESS project, launched by the CSIR, is at the forefront of this revolution. This flagship project aims to create a robust ecosystem for indigenous lithium-ion battery production, empowering Indian industries and paving the way for a cleaner, more energy-secure future.

The project is spearheaded by the CSIR-Central Electrochemical Research Institute (CSIR-CECRI). Recently, its Chennai Centre inaugurated an 18650-type cylindrical Li-ion battery fabrication facility, securing a production capacity of 1000 cells per day. This facility serves as a crucial bridge between pilot-scale research and the upcoming facility planned for Phase Two.

It nurtures Micro, Small and Medium Enterprises (MSMEs) by encouraging them to adopt indigenous fabrication techniques for lithium-ion cells. Technical incubation and knowledge transfer are also key focus areas, providing budding entrepreneurs with resources and guidance to establish lithium-ion battery startups.

By promoting the development of an indigenous supply chain for lithium-ion battery components, it fosters collaboration between research institutions and private sector

industries. Exploring next-generation energy storage solutions like sodium-ion batteries and supercapacitors, it adopts a future-oriented approach.

Collaborations with industry leaders like Tata Chemicals Ltd (TCL) demonstrate its commitment to synergy. This partnership enables TCL to leverage CSIR-CECRI's expertise, accelerating India's progress in lithium-ion battery technology.

Despite remarkable progress, challenges remain. Securing reliable lithium supplies and developing a skilled workforce are key hurdles. However, ongoing research into alternative battery technologies and investment in training programmes offer promising solutions.

The project will contribute significantly to India's energy security and economic growth. Widespread adoption of electric vehicles powered by locally produced batteries will reduce dependence on fossil fuels and curb vehicular emissions. It will establish large-scale battery production facilities in India, meeting growing energy storage demands and creating new job opportunities.

The ICeNGESS project's impact extends far beyond establishing a battery production facility. Its ultimate goal is to create a thriving indigenous lithium-ion battery technology